SCCSID = reservoir_input.man v1.2 08/11/03

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SOUTH FLORIDA WATER MANGEMENT MODEL V5.0
INPUT MAN PAGE FOR

reservoir_input == defines data related to reservoirs/stas to be simulated
(unit no. 103; subroutine reserv_input_data.F)

COLS.	VAR.NAME	FORMAT	DESCRIPTION
1. IDENTIFICATION OF RESERVOIRS: (1 record total) format(i5,2x,10(A6,1x))			
1–5	NMAWS	I5	number of reservoirs maintained at desired minimum levels during dry periods
6–7	blank	2X	
	note: The following set of two fields is continuation of the same record and are repeated for I = 1,NMAWS. These fields are not used if NMAWS is equal to zero.		
8–13	CINDXAWS(I)	A6	character string identification of the reservoirs
14	blank	1X	
2. ADDITIONAL INPUT FOR RESERVOIRS: (1 record total) format(50i6)			
	note: The following field is repeated on the same record for J = 1,INDXAWS(I).		
1–6	IDIRFRLO(J)	I6	option to release water from LOK to maintain appropriate reservoir(s) if capacity exists valid entries: 1 = regardless of LOK stage 0 = Bottom of Zone B line of Supply side Management is limit in LOK stage allowed for Water supply from LOK to STAs)
	note: This record is not used if NMAWS is equal to zero.		

3. STORMWATER TREAMENT AREA DEFINITION: (1 record total)
format(i5,2x,10(A6,1x))

1–5	NSTARFF	I5	number of STAs receiving INFLOWs directly from appropriate basins
6–7	blank	2X	
	note: The following set of two fields is a continuation of the same record for I = 1,NSTARFF. These fields are not used if NSTARFF is equal to zero.		
8–13	name_ISTARF(I)	A6	character string identification of the Stormwater Treatment Areas
14	blank	1X	

4. HOLEYLAND DEFINITION AS A RESERVOIR: (1 record total)

1–3	NPUMPTORES	free	number of pumps routing water to HOLEYLAND from another reservoir
	note: The following set of two fields is a continuation of the same record for I = 1,NPUMPTORES. These fields are not used if NPUMPTORES is equal to zero.		
	IBSNRES(I)	free	hydrologic basin number assigned for HOLEYLAND
	PUMPCAP_RES(I)	free	capacity of pump I (cfs)

5. IDENTIFICATION OF RESERVOIRS WITH SPECIAL CODE: (1 record total)
format(i3,2x,25(A6,1X))

1–3	no_of_res_spec_code	I3	number of reservoirs with special code
4–5	blank	2X	
	note: The following set of two fields is a continuation of the same record for I = 1,no_of_res_spec_code. These fields are not used if no_of_res_spec_code is equal to zero.		
6–11	name_res_spec_code(i)	A6	character string identification of reservoirs with special code
12	blank	1X	

6. IDENTIFICATION OF STRUCTURES WITH SPECIAL CODE: (1 record total)
format(i3,2x,50(A6,1X))

1–3	no_of_struc_spec_code	I3	number of reservoirs with special code
4–5	blank	2X	

note: The following set of two fields is a continuation of the same record for I = 1,no_of_struc_spec_code.
These fields are not used if no_of_res_spec_code is equal to zero.

6-11 res_struc_name_spec_code(i) A6 character string identification of reservoirs with special code

12 blank 1X

NOTE: The remaining records are read in only if NTOTRES is greater than zero where: NTOTRES = NMAREA+NRESLEC. Refer to input file 'reserv_grid_loc.dat'. Record set 7 through 40 defines details of each reservoir and is read in for a total of NTOTRES times, i.e. IA = 1,NTOTRES.

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7. RESERVOIR NAME: (1 record total)
format(A6)

1-	sim_res_name(IA)	free	character string identification of reservoir; should match one of the reservoir names as defined in input file "reserv_grid_loc.dat" model array variable name "resname()"

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8. RESERVOIR FOOTPRINT: (1 record total)

1-	RES_AREA(IA)	free	actual area of reservoir (acres)

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9. INFLOW CUTOFF STAGE: (1 record total)

1-	STGMX(IA)	free	maximum stage allowed for structural INFLOW (ft NGVD)

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10. MINIMUM MAINTENANCE DEPTH: (1 record total)

1-	DPHWS(IA)	free	minimum depth (ft) of water to be maintained during dry periods (source of water is Lake Okeechobee). Input of -901 means reservoir is not maintained.

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11. GRID LOCATION OF RESERVOIR REFERENCE CELL: (1 record total)

1-	IXCNODE(IA)	free	column location of reference cell for reservoir
	IYCNODE(IA)	free	row location of reference cell for reservoir

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12. NUMBER OF INFLOW STRUCTURES FOR RESERVOIR IA: (1 record total)

1-	NINSTR(IA)	free	number of INFLOW structures bringing water from sources other than canals

note: Set of records 13 through 19 is read only if NINSTR(IA) is greater than 0.

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13. INFLOW STRUCTURE NAMES FOR RESERVOIR IA: (1 record total)
format(10(A6,1X))

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note: The following set of two fields is repeated on the same record for i = 1,NINSTR(IA).

1–6	res_struc_inflow_name(ia,i)	A6	name assigned to INFLOW structure i for reservoir ia
6–7	blank	1X	

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14. INFLOW STRUCTURE DISCHARGE COEFFICIENTS FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NINSTR(IA).

1–6	WEIRCFF(IA,I,1)	F6.0	discharge coefficient for INFLOW structure I to reservoir IA

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15. INFLOW STRUCTURE CREST ELEVATION FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NINSTR(IA).

1–6	CRSTELEV(IA,I,1)	F6.0	crest elevation (ft NGVD) of INFLOW structure I to reservoir IA; (–901 means does not apply)

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16. INFLOW STRUCTURE DISCHARGE EXPONENTS FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NINSTR(IA).

1–6	WREXP(IA,I,1)	F6.0	exponent in equation to determine capacity of INFLOW structure I for reservoir IA

note: Set of records 17 through 19 is repeated for each inflow structure for reservoir IA, i.e., IS = 1,NINSTR(IA).

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17. NUMBER AND TYPE OF INFLOW RECIPIENT: (1 record total)
format(50I6)

1–3	NINDPTS(IA,IS)	I3	number of recipients of flow from INFLOW structure IS
4–6	INODOPT(IA,IS,1)	I3	option for type of recipient for INFLOW structure IS

valid entries:
1 = grid cell

0 = canal

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18. LOCATION OF INFLOW RECIPIENT/S: (1 record total)
format(50I6)

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note: The following set of two fields is repeated on the same record for I = 1,NINDPTS(IA,IS).

1–6	IXLIN(IA,IS,I)	I6	col location of recipient grid cell I for INFLOW structure IS
7–12	IYLIN(IA,IS,I)	I6	row location of recipient grid cell I for INFLOW structure IS

note: This record is read in only if INODOPT(IA,IS,1) = 1.

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19. NAME OF INFLOW RECIPIENT/S: (1 record total)
format(10(A5,1X))

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note: The following set of two fields is repeated on the same record for I = 1,NINDPTS(IA,IS).

1–5	CINCNL(I)	A5	name of recipient canal I for INFLOW structure IS; should match one of the canal names as defined in input file "canal_grid_loc.dat" or model array variable name "cnm()".
6	blank	1X	

note: This record is read in only if INODOPT(IA,IS,1) = 0.

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20. NUMBER OF OUTFLOW STRUCTURES FOR RESERVOIR IA: (1 record total)

1–	noutstr(IA)	free	number of OUTFLOW structures

note: Set of records 20 through 34 is read only if noutstr(IA) is greater than 0.

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21. OUTFLOW STRUCTURE NAMES FOR RESERVOIR IA: (1 record total)
format(10(A6,1X))

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note: The following set of two fields is repeated on the same record for i = 1,noutstr(IA).

1–6	res_out_strname(ia,i)	A6	name assigned to each OUTFLOW structure for reservoir ia
6–7	blank	1X	

note: Names of reservoir outlet structures do not need to be added to structure master list in model_definition_info.dat.

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22. OUTFLOW STRUCTURE TYPES FOR RESERVOIR IA: (1 record total)
format(10(A3,3X))

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note: The following set of two fields is repeated on the same record for i = 1,noutstr(IA).

1–3 opt_sim_code(ia,i) A3 identification of type of code used in simulating outflow structure flow i for reservoir ia

valid entries:
GEN = use general code
SPC = use special code

4–6 blank 3X

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23. OUTFLOW STRUCTURE DISCHARGE COEFFICIENTS FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NOUTSTR(IA).

1–6 WEIRCFF(IA,I,2) F6.0 discharge coefficient for OUTFLOW structure I to reservoir IA

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24. OUTFLOW STRUCTURE CREST ELEVATION FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NOUTSTR(IA).

1–6 CRSTELEV(IA,I,2) F6.0 crest elevation (ft NGVD) of OUTFLOW structure I to to reservoir IA; If structure is simulating seepage from reservoir to SAME cell in which reservoir is located, then using −901 can be input since crest elevation is not used.

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25. OUTFLOW STRUCTURE DISCHARGE EXPONENTS FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NOUTSTR(IA).

1–6 WREXP(IA,I,2) F6.0 exponent in equation to determine capacity of OUTFLOW structure I for reservoir IA

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26. OUTFLOW STRUCTURE DISCHARGE CAPACITIES FOR RESERVOIR IA: (1 record total)
format(30F6.0)

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note: The following field is repeated on the same record for I = 1,NOUTSTR(IA).

1–6 RMXCPO(IA,I) F6.0 maximum capacity (cfs) of outlet structure I for for reservoir IA

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27. RESERVOIRS DOWNSTREAM OF OUTFLOW STRUCTURES FOR RESERVOIR IA: (1 record total)
format(10(A6,1x))

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----------------------------------------------------------------------------------------
          note: The following set of two fields is repeated on the same record for
                I = 1,NOUTSTR(IA).
1-6 ds_res_name(I)          A6  name of downstream reservoir of outflow structure I
                                for reservoir IA; "NORES" means no reservoir is
                                recipient of OUTFLOW from structure I; should match
                                one of the reservoir names as defined in input file
                                "reserv_grid_loc.dat" or model array variable name
                                "resname()"; limitation: each structure can only
                                have one receiving downstream reservoir.
7       blank               1X
----------------------------------------------------------------------------------------
28. TYPES OF OUTFLOW STRUCTURES FOR RESERVOIR IA: (1 record total)
    format(10(A7,1X))
----------------------------------------------------------------------------------------
          note: The following set of two fields is repeated on the same record for
                I = 1,NOUTSTR(IA).
1-7 TYPE(IA,I)              A7   type of OUTFLOW through structure I for reservoir IA
          valid entries:
                  GRAVITY = gravity structure
                  PUMPED  = use special code
8       blank               1X
----------------------------------------------------------------------------------------
29. PURPOSE OF OUTFLOW STRUCTURES FOR RESERVOIR IA: (1 record total)
    format(10A6)
----------------------------------------------------------------------------------------
          note: The following field is repeated on the same record for
                I = 1,NOUTSTR(IA).
1-6 res_out_type(ia,i)      A6  purpose of OUTFLOW through structure I for reservoir IA
           valid options:
                    FLDC  = for flood control
                    WSPLY = for water supply to meet urban or agricultural demands
                    ENVIR = for environmental purposes
                    SEEPG = represents seepage out of reservoir; becomes available
                            to meet water supply needs
----------------------------------------------------------------------------------------
30. IDENTIFICATION OF TRIGGERS USED BY OUTFLOW STRUCTURES FOR RESERVOIR IA:
    (1 record total)
----------------------------------------------------------------------------------------
          note: The following field is repeated on the same record for
                I = 1,NOUTSTR(IA).
1-  i_ds_target_name(i)   free  name of stage target trigger used outflow structure i
                                for reservoir IA; "NOTRG" means no stage trigger is
                                used as condition for OUTFLOW; should match
                                one of the target areas as defined in input file
                                "stage_import_specs.dat" or model array
                                variable name "import_area_name()".
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          note: Set of records 31 through 34 is read only if at least one of the
                outflow structures is used for water supply, i.e. res_out_tyep(ia,i) =
                "WSPLY " or res_out_type(ia,i) = "SEEPG " as defined in record 29 above.
-------------------------------------------------------------------------------------------
31. DATA FOR OUTFLOW STRUCTURES USED FOR WATER SUPPLY: (1 record total)
-------------------------------------------------------------------------------------------
1-   iconv_use_opt_ws(nres_ws)
                           free  option whether discharge from each structure affects
                                 conveyance of any major EAA canals
           valid entries:
                         1 = yes
                         0 = no
       note: Index nres_ws is internally calculated in the model.

       note: Set of records 32 through 34 is repeated for each outflow structure used
             for water supply, i.e., IS = 1,noutws; where noutws = number of outflow
             structure used for WSPLY as defined in record 29 and is internally
             calculated in the model.
-------------------------------------------------------------------------------------------
32. DISCHARGE ROUTING OPTION: (1 record total)
-------------------------------------------------------------------------------------------
1-   idshg_opt(ires_no(nres_ws),is)
                           free  discharge routing option
           valid entries:
                         0 = discharge to canal
                         1 = discharge to meet EAA basin demands
                         2 = discharge to meet other water supply needs (pre-processed
                             time series demands (e.g.BIG CYPRESS SEM DEMANDS))
       note: Index ires_no(nres_ws) is internally calculated in the model.
-------------------------------------------------------------------------------------------
33. NAME OF EAA BASIN RECEIVING WATER SUPPLY DISCHARGE: (1 record total)
-------------------------------------------------------------------------------------------
1-   ieaa_bsn(nres_ws,is) free  identifier of EAA basin receiving water supply discharge
                                from each OUTFLOW structure
           valid entries:
                         1 = Miami Canal Basin
                         2 = NNRC-HIL canal basin
                         3 = WPB canal basin
                      -901 = ws discharge not going to EAA basin(s))
       note: Index nres_ws is internally calculated in the model.
-------------------------------------------------------------------------------------------
34. MINIMUM HEADWATER STAGE FOR WATER SUPPLY: (1 record total)
-------------------------------------------------------------------------------------------
1-   stg_min_wsply(ires_no(nres_ws),is)
                           free  minimum headwater stage (ft NGVD) at structure location
                                 allowed for water supply discharges (usually 0.1-0.5 ft
                                 above land surface)
       note: Index ires_no(nres_ws) is internally calculated in the model.
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35. NUMBER OF UPTREAM POINTS ASSOCIATED WITH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)
format(50I6)

1–6	NOUTDPTS(IA,IS)	I6	number of upstream points or origins of flow through OUTFLOW structure IS for reservoir IA; limitation: each structure can only have one upstream point
7–12	INODOPT(IA,IS,2)	I6	option for origin of flow through OUTFLOW structure IS for reservoir IA valid entries: 0 = from canal 1 = from grid cell

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36. GRID LOCATIONS OF UPSTREAM OF FLOW THROUGH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)
format(50I6)

1–6	IXLOUT(IA,IS)	I6	grid cell column location for origin of flow through outflow structure IS for reservoir IA
7–12	IYLOUT(IA,IS)	I6	grid cell row location for origin of flow through outflow structure IS for reservoir IA

note: This record is read in only if INODOPT(IA,IS,2) = 1.

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37. CANAL NAMES OF UPSTREAM OF FLOW THROUGH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)
format(a5)

1–5	COUTCNL	A5	canal name for origin of flow through OUTFLOW structure IS for reservoir IA; should match one of the canal names as defined in input file "canal_grid_loc.dat" or model array variable name "cnm()".

note: This record is read in only if INODOPT(IA,IS,2) = 0.

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38. NUMBER OF DOWNSTREAM POINTS ASSOCIATED WITH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)
format(50I6)

1–6	NDSPTS(IA,IS)	I6	number of downstream points or recipients of flow through OUTFLOW structure IS for reservoir IA
7–12	INODOPT(IA,IS,3)	I6	option for recipients of flow through OUTFLOW structure IS for reservoir IA valid entries:

0 = from canal
1 = from grid cell

---

39. GRID LOCATIONS OF DOWNSTREAM OF FLOW THROUGH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)

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note: The following set of two fields is repeated on the same record for I = 1,NDSPTS(IA,IS).

1-	IXRW(IA,IS,I)	free	grid cell column location for recipient of flow through outflow structure IS for reservoir IA
	IYRW(IA,IS,I)	free	grid cell row location for recipient of flow through outflow structure IS for reservoir IA

note: The following field is a continuation of the same record.

	NRGTRG(IA,IS)	free	number of trigger locations limiting outflow

note: The following set of three fields is a continuation of the same record for J = 1,NRGTRG(IA,IS). The following set of three fields is not used if NRGTRG(IA,IS) = 0.

	IXR_RTRG(IA,IS,J)	free	grid cell column location of trigger
	IYR_RTRG(IA,IS,J)	free	grid cell row location of trigger
	STGR_TRG(IA,IS,J)	free	trigger stage above which no outflow would occur for each trigger location

note: This record is read in only if INODOPT(IA,IS,3) = 1.

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40. CANAL NAMES OF DOWNSTREAM OF FLOW THROUGH OUTFLOW STRUCTURES FOR RESERVOIR IA:
(1 record total)
format(5(a5,2x,2(f6.1,2x)))

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note: The following set of six fields is repeated on the same record for I = 1,NDSPTS(IA,IS).

1-5	CIRCNL(I)	A5	canal name for recipient of flow through OUTFLOW structure IS for reservoir IA; should match one of the reservoir names as defined in input file "reserv_grid_loc.dat" model array variable name "resname()"
6-7	blank	2X	
8-13	DWNSTGMX(IA,IS,I)	F6.1	maximum stage (ft ngvd) allowable; use 999.0 for no maximum stage) for MAXIMUM OUTFLOW from structure to occur
14-15	blank	2X	
16-21	OFFSET_REG_RES(IA,IS,I)		

		F6.1	increment (ft) in stage above trigger for maximum outflow that NO outflow would occur
22–23	blank	2X	

note: This record is read in only if INODOPT(IA,IS,3) = 0.

END OF DESCRIPTION FOR INPUT FILE "reservoir_input"
